

CLAIMS:

1. A transmission apparatus comprising:

an arrangement determiner that determines a  
5 constellation mapping position indicating an arrangement  
position of each symbol data in the IQ plane when  
transmission data is retransmitted so that the  
constellation mapping position becomes different from  
that in a last transmission;

10 a data assigner that assigns transmission data to  
each symbol so that the each symbol data with the same  
amplitude is arranged in the constellation mapping  
position determined by the arrangement determiner; and

a transmitter that transmits the transmission data  
15 that is assigned to the each symbol in the data assigner.

2. The transmission apparatus according to claim 1,  
wherein the arrangement determiner rotates the  
constellation mapping position of the last transmission  
20 by predetermined angles along a circumference of a circle  
with an intersection point of the I axis and Q axis as  
a center in the IQ plane to determine as the constellation  
mapping point when the transmission data is  
retransmitted.

25

3. The transmission apparatus according to claim 1,  
further comprising:

a data interchanger that interchanges predetermined bits of the transmission data so that a bit arrangement of each symbol when the transmission data is retransmitted becomes different from that in the last transmission, wherein the data assigner assigns the transmission data interchanged in the data interchanger to each symbol.

4. A transmission apparatus comprising:

a data interchanger that interchanges predetermined bits of transmission data so that a bit arrangement of each symbol when the transmission data is retransmitted becomes different from that in a last transmission;

a data assigner that assigns the transmission data interchanged by the data interchanger to each symbol so that each of a plurality of items of symbol data with the same amplitude is arranged in a constellation mapping position indicating an arrangement position of each symbol of the transmission data in the IQ plane; and

a transmitter that transmits the transmission data that is assigned to the each symbol by the data assigner.

5. A base station apparatus having a transmission apparatus, wherein the transmission apparatus comprising:

an arrangement determiner that determines a constellation mapping position indicating an arrangement position of each symbol data in the IQ plane when transmission data is retransmitted so that the

constellation mapping position becomes different from that in a last transmission;

a data assigner that assigns transmission data to each symbol so that the each symbol data with the same  
5 amplitude is arranged in the constellation mapping position determined by the arrangement determiner; and

a transmitter that transmits the transmission data that is assigned to the each symbol by the data assigner.

10 6. A communication terminal apparatus having a transmission apparatus, wherein the transmission apparatus comprising:

an arrangement determiner that determines a constellation mapping position indicating an arrangement  
15 position of each symbol data in the IQ plane when transmission data is retransmitted so that the constellation mapping position becomes different from that in a last transmission;

a data assigner that assigns transmission data to  
20 each symbol so that the each symbol data with the same amplitude is arranged in the constellation mapping position determined by the arrangement determiner; and

a transmitter that transmits the transmission data that is assigned to the each symbol by the data assigner.

25

7. A transmission method comprising the steps of:  
determining a constellation mapping position

indicating an arrangement position of each symbol in the IQ plane when transmission data is retransmitted so that the constellation mapping position becomes different from that in a last transmission;

- 5            assigning transmission data to the each symbol so that each symbol data is arranged in the determined constellation mapping position; and

             transmitting the transmission data assigned to the each symbol.

10